

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 05 APR 2005

PCT WIPO PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/033563

International filing date (day/month/year)
12.10.2004

Priority date (day/month/year)
24.10.2003

International Patent Classification (IPC) or both national classification and IPC
F42B15/36

Applicant
THE BOEING COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Telephone No. +31 70 340-



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/033563

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/033563

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rules 43bis.1 and 70.10)

and /or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

see form 210

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US 5 735 626

D2: US 5 585 596

D3: EP 1 355 120

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 - 10 does not involve an inventive step in the sense of Article 33(3) PCT.
2. The document D1 is regarded as being the closest prior art to the subject-matter of independent claim 1, and discloses (the references in parentheses applying to this document):

A separation joint for coupling a first structure (18) to a second structure (16) comprising:

- a male member having a first major surface and a second major surface wherein at least one projection (50,52,54) is formed on said first and second major surface;
- a female member having a first flange (38) and a second flange (38) wherein at least one projection (40,42,44) is formed on said first and second flange, wherein surfaces of said at least one projection and said first and second flange are respectively mated to surfaces of said at least one projection and said first and second major surface of said male member to prevent separation of the separation joint under tensile and compressive forces.

Furthermore D1 describes expansion means (68) placed within a cavity of said female member. D1 does not explicitly describe the expansion means to comprise an explosive device, although "expanding gases" are indicated (column 4, line 63).

3. The subject-matter of independent claim 1 therefore differs from this known separation joint in that the expansion means consist of an explosive device.

4. The problem to be solved by the present invention may therefore be regarded as:
How can the required expanding gases for the expansion means of D1 be provided?
5. The solution proposed in independent claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

In the field of separation joints for aerospace applications the use of an explosive device for the creation of expanding gases which are used to separate two structures is very well known. An example can be found in D2.

Since it requires no inventive skill to use a well known explosive device as disclosed in D2 in separation joint according to D1, the subject matter of independent claim 1 does not involve an inventive step.

6. Dependent claims 2 - 4 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, the reasons being as follows:

The features of dependent claims 2 - 4 are obvious for the man skilled in the art of separation joints. Female members of separation joints comprising a first and second half structure are for example illustrated in D3. In figure 3 of D3 the bending of the flange/half structure upon expansion, as in D1, is clearly demonstrated.

7. The same reasoning as for independent claim 1 applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 5 and 8, which therefore is also considered not inventive.
8. Dependent claims 6, 7, 9 and 10 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, since the features of these dependent claims are obvious for the man skilled in the art of separation joints (see documents D1 - D3).

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2004/033563

Re Item VI

Certain documents cited

Certain published documents

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
US2004/0216634	4.11.2004	29.04.2003	
FR 2 854 669	12.11.2004	29.04.04	29.04.2003